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EXAMINER	
SURVILLO, OLEG	
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2442	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,358	JUNG ET AL.	
	Examiner	Art Unit	
	OLEG SURVILLO	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/17/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Claims 1-39 remain pending in the application. Claims 2-14, 16-33, and 35-39 are currently amended. No claims have been canceled. No new claims have been added.

Response to Arguments

2. With regard to applicant's remarks dated April 2, 2009:

regarding the rejection of claims 17-32 under 35 U.S.C. 101, applicants' arguments' amendment has been fully considered and is sufficient. Therefore, the rejection has been withdrawn.

Regarding the rejection of claims 17-32 under 35 U.S.C. 112, first paragraph, applicants' amendment has been fully considered and is sufficient. Therefore, the rejection has been withdrawn.

Regarding the rejection of claims 1-4, 7, 8, 10, 11, 13, 17-20, 23, 24, 26, 27, 29, and 33 under 35 U.S.C. 102(b) as being anticipated by Mulgund et al., applicants' arguments have been fully considered but they are not persuasive. As to claim 1, applicants argue that *"Examiner has not explained how he reaches this mapping under the broadest reasonable interpretation framework as is Examiner's burden (e.g., such as by examples drawn from Applicant's claims or detailed description), and furthermore, Applicant points out that this mapping appears to disregard at least the "mote-addressed content indexes from a first set of motes"."* Examiner disagrees. Examiner

has fully explained his rationale for interpreting claim elements in his reasons for rejection and also in response to previously filed arguments in at least page 6 of the last Office action. Examiner points out that he is not aware of any requirement to explain examples drawn from Applicant's claims or detailed description of Applicant's specification. Applicants are requested to provide a citation to legal statutes in support of such requirement.

Applicants further argue that the Office action fails to state a prima facie case of anticipation because the cited prior art (Mulgund et al.) fails to identify the same elements as in claim 1. In particular, Applicants asserted that Mulgund does not show verbatim the language of the claim. Examiner disagrees. As discussed several times before in the earlier responses, in order to for examiner to establish a prima facie case of anticipation of an applicants' claim, examiner must interpret the claim. If it could be shown that the cited prior art discloses the claimed limitations in exactly the same words, no claim interpretation would be necessary. Therefore, Office action is not required to identify a reference that would repeat claim language verbatim.

As to claim 1, applicants further argued that: *"the Examiner-identified portions of Mulgund do not recite the text of clause [a] as recited in independent claim 1"*. Examiner disagrees for the same reasons as discussed above, wherein the quoted material from Mulgund is not required to repeat the claim language word for word, as claimed limitations are a subject to interpretation, such interpretation being as broad as the claim terms would reasonably allow, in light of the specification, when read by one skilled in the art with which the claimed invention is most closely connected. To that

extent, one of ordinary skill in the art at the time of the invention would have interpreted content indexes from a first set of motes as indexing information related to sensor data outputs stored in Sensor Data Table 24. It is well known to one of ordinary skill in the art that such data allows to distinguish between different sensor data outputs, as discussed in connection with relational databases of Figs. 3 and 4 in Mulgund.

In response to the argument that *"the examiner has provided no objectively verifiable evidence, or argument based on objectively verifiable evidence, as to how Mulgund could be modified/combined to teach at least Clause [a] of Independent Claim 1"* applicants are requested to provide statutes, regulations, or sections of the MPEP that would require examiner to provide objectively verifiable evidence, or argument based on objectively verifiable evidence, as to why Mulgund, as a reference used in 35 U.S.C **102(b)** rejection (emphasis added), should be **modified or combined** to teach clause [a] of the claim 1. Examiner maintains that a prima facie case of anticipation of an applicant's claim has been established since examiner first interpreted the claim, and thereafter showed that the cited prior art discloses the same elements, in the same arrangement, as the elements of the claim which the examiner asserts is anticipated.

In response to the argument that *"the examiner is relying on "personal knowledge" and/or is taking "official notice" of one or more factors to reach the factual conclusion of what the cited technical material "teaches""*, it is noted that each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Therefore, taking official notice of facts not in the record or relying on "common knowledge" in making a rejection by the examiner is not

appropriate and was not taken/relied on. Thus, applicants' reliance on MPEP section 2144.03(c) is misplaced.

As to claims 2-39, Applicants presented analogous arguments as discussed just above that do not arise a need to be addressed separately. Examiner disagrees for the same reasons, which are not repeated for brevity.

Additionally, as to claim 34, applicants argue that *"were one to incorporate the "TinyDB" as taught by Madden into the structure of Mulgund, Mulgund would no longer have a "knowledge base 18". Thus, the Examiner-suggested modification/combinations would change the principle of operation of Mulgund for at least this reason"*. Examiner disagrees because applicants failed to provide any reasoning underpinning their rationale for Mulgund no longer having a "knowledge base 18" as per combination of Mulgund and Madden. Examiner maintains that suggested combination of Mulgund's and Madden's teachings would not require at least one additional and as-yet-hypothetical modification. Thus, applicant's argument cannot be held as persuasive.

As to any arguments not specifically addressed, they are the same as those discussed above.

Specification

3. The application contains disclosure entirely outside the bounds of the claims. Applicant is required to modify the brief summary of the invention and restrict the descriptive matter so as to be in harmony with the claims (MPEP § 1302.01).

In particular, it appears that only disclosure of section II. AGGREGATING MOTE-ASSOCIATED INDEX DATA (pages 14-18 of the specification) and partially the disclosure of section I. MOTE-ASSOCIATED INDEX CREATION (pages pertaining to the description of Fig. 2 and Fig. 4) is relevant to the subject matter of claims 1-39, as presently claimed. The rest of the specification describes the subject matter of the co-pending applications wherein the name of each section in the specification corresponds to the name of each of the co-pending applications. Applicants are reminded that the subject matter of later sections of the specification (sections III, IV, and V.) is actually included through their incorporation by reference of the related/parent applications, as mentioned in the beginning of the specification (pages 1-4). As a result, providing a detailed description of the subject matter of co-pending applications is redundant and must be removed from the current application.

This objection was requested by applicants to be held in abeyance until allowable subject matter is indicated, pursuant to 37 CFR 1.111(b), in supplemental response dated November 5, 2008.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 39 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 39, the newly added limitation of "the one or more indicators of a second mote's content to be indexed comprise content stored on the second mote" is ambiguous because it is unclear how can indicators of a content comprise said content, which precludes the examiner from interpreting claim limitation and properly applying prior art reference. Appropriate correction or explanation is required. As to the limitation of "one or more mote-network addresses of the second mote's content", it is noted that for the purposes of examination, the address of the mote's content is interpreted to be the same as address of a mote itself, since mote's content forms part of the mote.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1 and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Mulgund et al. (US 2002/0161751 A1).

As to claim 1, Mulgund shows:

aggregating at least a part of one or more mote-addressed content indexes from a first set of motes [aggregating indexing information related to sensor data outputs stored in Sensor Data Table 24. It is well known to one of ordinary skill in the art that such indexing data allows one to distinguish between different sensor data outputs, as

discussed in connection with relational databases of Figs. 3 and 4] (abstract, par. [0005] and [0025], Fig. 3, Fig. 4), wherein at least one mote in the first set of motes comprises a device formed in a substrate having at least two of a semi-autonomous computing functionality, a communication functionality, or a sensing functionality [at least one sensing node (2) in the first set of sensing nodes (Fig. 1) comprising a computational device being a small embedded platform that has one or more sensors (16)] (par. [0026]).

As to claim 33, Mulgund shows:

a mote comprising a device formed in a substrate having at least two of a semi-autonomous computing functionality, a communication functionality, or a sensing functionality [at least one sensing node (2) in the first set of sensing nodes (Fig. 1) comprising a computational device being a small embedded platform that has one or more sensors (16)] (par. [0026]); and

means for aggregating at least a part of one or more mote-addressed content indexes from a first set of motes [sensor network modeling agent (14), Fig. 2), said means for aggregating being coupled [being connected by a network] with a reporting entity [software application programming interface (API) and hardware implementation] disposed proximate to said mote, said reporting entity being operable to report an aggregation of at least a part of one or more mote-addressed content indexes from the first set of motes [software API allows the network modeling agent to access a node on

the network and retrieve information stored in a knowledge base (18) of the node] (par. [0026], [0044]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2-4, 7, 8, 10, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al.

As to claim 2, Mulgund shows:

receiving at least a part of one or more mote-addressed indexes of the first set of motes [retrieving the information stored at the node] (par. [0025], [0062]).

Mulgund does not show that said receiving is performed at a second mote.

Madden shows receiving at a second mote [parent node] at least a part of one or more mote-addressed indexes of the first set of motes [sensor attributes, such as group id, in a collection phase, where aggregate values are continually routed up from children to parents] (abstract, section 1.1 par. 2, section 4, 4.1 pars. 1-2, and 4.2; Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by receiving said indexes at a second mote

in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

As to claim 3, Mulgund shows:

aggregating at least a part of one or more mote-addressed content indexes from the first set of motes, as discussed per claim 1, the content indexes comprising information indicating sensing or control capabilities associated with the first set of motes [indexing information of Mulgund includes node's unique address, wherein it is known a priori what type of output a particular node provides. Each Node Data Table contains node's unique address, which identifies a sensing function of that node] (par. [0029], [0042] in Mulgund); and

creating one or more multi-mote content indexes of the first set of motes (Fig. 4, par. [0042]).

Mulgund does not show that said aggregating and said creating is performed at the second mote.

Madden shows aggregating and creating at least a part of one or more mote-addressed indexes of the first set of motes [sensor attributes, such as group id] being performed at a second mote [parent node] [a collection phase, where aggregate values are continually routed up from children to parents] (abstract, section 1.1 par. 2, section 4, 4.1 pars. 1-2, and 4.2; Fig. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by aggregating and creating said indexes at a second mote in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

As to claim 4, Mulgund in view of Madden shows:

obtaining a listing of motes appropriate to at least one of the one of more multi-mote content indexes (paragraphs [0035] and [0037] in Mulgund).

As to claim 7, Mulgund in view of Madden shows:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes (paragraphs [0035] and [0037] in Mulgund) from one or more motes to be included in the listing (par. [0061] and [0062] in Mulgund) wherein the second column in table 1 (CAL) shows the current links from the Node being visited.

As to claim 8, Mulgund in view of Madden shows:

receiving at the second mote at least a part of at least one of a mote-addressed sensing index from a reporting entity at a mote of the first set of motes [a collection phase, where the aggregate values are continually routed up from TinyOS of children nodes to parents] (abstract, section 1.1 par. 2, section 4, 4.1 pars. 1-2, and 4.2; Fig. 2 in Madden).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by receiving at a second mote at least a part of at least one of a mote-addressed sensing index from a reporting entity at a mote of the first set of motes in order to lower the number of message transmissions, latency, and power consumption than the server-based approach (as taught by Mulgund) (Madden, section 4 under In-Network Aggregates).

As to claim 10, Mulgund in view of Madden shows:

receiving at a second mote from the first set of motes at least a part of one or more multi-mote content indexes of the first set of motes, as discussed per claim 8, above.

As to claim 11, Mulgund in view of Madden shows:

receiving at the second mote at least a part of at least one of a mote-addressed sensing index from a multi-mote reporting entity at a mote of the first set of motes, as discussed per claim 8, above.

As to claim 13, Mulgund shows:

creating an aggregate of at least a part of one or more multi-mote content indexes of the first set of motes (abstract, paragraph [0005] and [0025], Fig. 3, Fig. 4), wherein the one or more multi-mote content indexes include identifiers of devices available at a mote of the first set of motes, and information indicating sensing and

control capabilities associated with the devices [indexing information of Mulgund includes node's unique address, wherein it is known a priori what type of output a particular node provides. Each Node Data Table contains node's unique address, which identifies a sensing function of that node] (par. [0029], [0042] in Mulgund).

10. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. and in further view of Chiloyan et al. (US Patent No.: 7,165,109).

As to claim 5, Mulgund in view of Madden shows:

obtaining a listing of motes appropriate to at least one of the one or more multi-mote content indexes (paragraphs [0035] and [0037] in Mulgund) from a multi-mote registry [Nodes Table (20)].

Alternatively, Chiloyan shows:

obtaining a listing of devices from a registry [having an operational system accessing device registry to check if the particular peripheral device model is included in the current device registry] (col. 1 lines 50-65).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Madden by obtaining a list of devices from a registry in order to check if the particular device model and necessary information about the device is in the registry (col. 1 lines 58-63 in Chiloyan).

As to claim 6, Mulgund in view of Madden shows:

obtaining a pre-loaded listing of motes [initial model construction listing] (par. [0046] in Mulgund) appropriate to at least one of the one or more multi-mote content indexes (par. [0035] and [0037] in Mulgund).

Alternatively, Chiloyan shows:

obtaining a pre-loaded listing of devices [devices already included in the current device registry] (col. 1 lines 50-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Madden by obtaining a pre-loaded list of devices in order to check if the particular device model and necessary information about the device is already included in the registry (col. 1 lines 58-63 in Chiloyan).

11. Claims 9, 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. and in further view of Kung et al. (US 2005/0021724 A1).

As to claim 9, Mulgund in view of Madden shows:

receiving at the second mote at least a part of at least one of a mote-addressed index from a reporting entity at a mote of the first set of motes, as discussed per claim 8, above.

Mulgund does not show that received index is a mote-addressed routing/spatial index.

Kung shows determining one or more types of spatial information related to devices of or proximate to the mote (paragraph [0036]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund in view of Madden by having a mote-addressed routing/spatial index in order to determine a global position of a mote that would identify a location of the mote in space (par. [0010] in Kung) and relative to other nodes since each of the sensing nodes in communication with one or more other sensing nodes (par. [0026] lines 11-17 in Mulgund).

As to claim 12, Mulgund in view of Madden and Kung shows:

receiving at the second mote at least a part of at least one of a mote-addressed index from a multi-mote reporting entity at a mote of the first set of motes, as discussed per claim 9, above.

As to claims 14 and 15, Mulgund in view of Madden and Kung shows:

aggregating on a second set of motes at least a part of a mote-addressed index of a multi-mote content index of the first set of motes, as discussed per claim 9, above.

Alternatively to Kung, Madden ACQP (reference used in rejection of claim 16) shows a mote-addressed routing/spatial index at a mote (under 2.2 communication in sensor networks, paragraph 2).

12. Claims 16, 17, 32, and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al.

As to claim 16, Mulgund shows:

migrating the aggregating to a first mote of the first set of motes [visiting a first sensor node] (par. [0007] lines 18-19, par. [0062]); and

receiving at least a part of one or more mote-addressed content indexes of a second mote with the multi-mote index creation agent [interrogating a node with a network modeling agent retrieving the information stored at the node] (par. [0044]).

Mulgund shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (par. [0030]), which suggests that there exists some management module that collects data from sensors and stores it in the knowledge base. However, the management module per se is not explicitly shown.

Madden shows installing a multi-mote index creation agent received from a second mote at the first mote [a TinyDB, which is a distributed query processor that runs on each of the nodes in a sensor network] (section 1 Introduction, par. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by installing a multi-mote index creation agent received from a second mote at the first mote in order to select, join, project, and aggregate data from the sensors (section 1 Introduction, par. 4 in Madden).

As to claim 17, Mulgund shows:

an agent [sensor network modeling agent (14)] (Fig. 1) to aggregate at least a part of one or more mote-addressed content indexes from a first set of motes [aggregating indexing information related to sensor data outputs stored in Sensor Data Table 24. It is well known to one of ordinary skill in the art that such indexing data allows one to distinguish between different sensor data outputs, as discussed in connection with relational databases of Figs. 3 and 4] (abstract, par. [0005] and [0025], Figs. 3 and 4), wherein at least one mote in the first set of motes comprises a device formed in a substrate having at least two of a semi-autonomous computing functionality, a communication functionality, or a sensing functionality [at least one sensing node (2) in the first set of sensing nodes (Fig. 1) comprising a computational device being a small embedded platform that has one or more sensors (16)] (par. [0026]).

Mulgund also shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (par. [0030]), which suggests to one of ordinary skill in the pertinent art that there exists some *agent resident in a mote* that collects data from sensors and stores it in the local knowledge base. However, such local agent, *per se*, is not explicitly shown.

Madden shows an agent **resident in a mote** [a TinyDB, which is a distributed query processor that runs on each of the nodes in a sensor network] (section 1 Introduction, par. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having an agent **resident in the mote** in order to select, join, project, and aggregate data from the sensors (section 1 Introduction, par. 4 in Madden).

As to claim 32, Mulgund in view of Madden shows all the elements, as discussed above with respect to claim 16.

As to claim 34, Mulgund shows:

at least one mote comprising a device formed in a substrate having at least two of a semi-autonomous computing functionality, a communication functionality, or a sensing functionality [at least one sensing node (2) in the first set of sensing nodes (Fig. 1) comprising a computational device being a small embedded platform that has one or more sensors (16)] (par. [0026]); and

at least one multi-mote index creation agent [sensor network modeling agent (14)] (Fig. 1), said at least one multi-mote index creation agent configured to index at least a part of at least one mote-addressed content index including an index of content of other motes [network modeling agent creates a relational database containing indexing information related to sensor data outputs stored in Sensor Data Table 24. It is well known to one of ordinary skill in the art that such indexing data allows one to distinguish between different sensor data outputs, as discussed in connection with relational databases of Figs. 3 and 4] (Fig. 3 and par. [0037]).

Mulgund also shows that each node contains some local memory or other knowledge base for recording sensor output data, which can be retrieved by interrogating the node (par. [0030]), which suggests to one of ordinary skill in the pertinent art that there exists some *agent resident in a mote* that collects data from sensors and stores it in the local knowledge base. However, such local agent, *per se*, is not explicitly shown.

Madden shows a multi-mote index creation agent **resident in a mote** [a TinyDB, which is a distributed query processor that runs on each of the nodes in a sensor network] (section 1 Introduction, par. 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a multi-mote index creation agent being **resident in the mote** in order to select, join, project, and aggregate data from the sensors (section 1 Introduction, par. 4 in Madden).

As to claim 35, Mulgund shows that said at least one mote-addressed content index comprises at least one of a sensing function and a control function of the mote-appropriate device [indexing information of Mulgund includes node's unique address, wherein it is known a priori what type of output a particular node provides. Each Node Data Table contains node's unique address, which identifies a sensing function of that node] (par. [0029], [0042] in Mulgund).

As to claim 36, Mulgund in view of Madden shows:

a processor (section 2.1 Properties of Sensor Devices, par. 2 in Madden) configured to execute the at least one multi-mote index creation agent to obtain at least a sensing function (par. [0042] lines 16-19 in Mulgund).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Mulgund to include a processor in order to process data that is being stored in a knowledge base and respond to interrogation requests (Fig. 2 in Mulgund).

As to claim 37, Mulgund in view of Madden shows that said at least one mote comprises a processor, a memory, and a communications devices formed from a substrate (par. [0026] in Mulgund; section 2.1 in Madden).

As to claim 38, Mulgund shows:

a first mote [node (2)] (Fig. 1); and

at least one multi-mote registry [Nodes Table (20)], said at least one multi-mote registry having one or more indicators of a second mote's content to be indexed (par. [0037], [0061] and [0063], second column (CAL) in table 1).

Mulgund does not show that at least one multi-mote registry is resident in said first mote.

Madden shows a multi-mote registry [a short list] resident in a mote (under 2.2 Communication in Sensor Networks, par. 2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Mulgund by having a multi-mote registry resident in the mote in order to keep a list of neighbors who they have heard transmit recently, as well as some routing information about the connectivity of those neighbors (under 2.2 Communication in Sensor Networks, par. 2) (analogous to information about child nodes in Mulgund, Table 1, second column).

As to claim 39, this claim is examined as best understood. Mulgund shows that the one or more indicators of a second mote's content to be indexed comprise one or more mote-network addresses of the second mote's content [unique address of a node that stores node's content] (par. [0037]). Mulgund further shows that content to be indexed comprises content stored on the second mote (par. [0030]).

13. Claims 18-20, 23, 24, 26, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. (hereinafter Madden *ACQP*) and in further view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. (hereinafter Madden *TAG*).

As to claims 18-20, 23, 24, 26, 27, 29, Mulgund in view of Madden ACQP and Madden TAG shows all the elements, as discussed above with respect to the corresponding method claims 2-4, 7, 8, 10, 11, 13.

14. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. and in further view of Chiloyan et al..

As to claims 21 and 22, Mulgund in view of Madden ACQP, Madden TAG, and Chiloyan shows all the elements, as discussed above with respect to the corresponding method claims 5 and 6.

15. Claims 25, 28, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mulgund et al. in view of in view of "The Design of an Acquisitional Query Processor For Sensor Networks" by Samuel Madden et al. in view of "TAG: a Tiny Aggregation Service for Ad-Hoc Sensor Networks" by Samuel Madden et al. and in further view of Kung et al.

As to claims 25, 28, 30, 31, Mulgund in view of Madden ACQP, Madden TAG, and Kung shows all the elements, as discussed above with respect to the corresponding method claims 9, 12, 14, 15.

Conclusion

16. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to OLEG SURVILLO whose telephone number is (571)272-9691. The examiner can normally be reached on M-Th 8:30am - 6:00pm; F 8:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Examiner: Oleg Survillo

Phone: 571-272-9691

/Andrew Caldwell/
Supervisory Patent Examiner, Art Unit 2442